



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

The sorghum plants thus have the advantage over the corn plant under any climatic condition that would tend to bring about a loss of water from these plants. The sorghums have, in the first place, as compared to the corn plant, only one-half the leaf surface exposed for the evaporation of water; and in the second place, they have a root system which, judging from the number of secondary roots, would be twice as efficient in the absorption of water from the soil. As a result of this advantage the sorghum plants are able to absorb water from the soil as rapidly as the evaporating power of the air demands its removal from the leaves. The corn plant, on the other hand, is not capable of supplying its large extent of leaf surface with a sufficient amount of water to satisfy the evaporating power of the air, and, as a result, its rate of transpiration per unit of leaf surface falls below what it would be if the needed amount of water were supplied, and is thus lower than that of the sorghums.

As a farther result of the water supply in the leaves, the sorghums can produce more dry matter for each unit of leaf area under severe climatic conditions than the corn plant.

Kansas State Agricultural College, Manhattan.

---

### **The Wamego Anticline.**

J. W. BEEDE.

In examining the region west of Wamego an anticline fold or arch of considerable dimensions was found. It lies west of Wamego and Louisville and largely east of St. George. The outline of the apex of this fold is very difficult to determine on account of the rocks being deeply covered with loose glacial material, so that few rock exposures exist over the territory. However, along the Kansas river this material has been carried away sufficiently to reveal the surface strata. An occasional exposure and the dips of the strata in the region adjoining indicate fairly clearly the location of the axis, or top, of the dome.

The total extent of the field is very great, reaching from the vicinity of Manhattan on the west well toward St. Marys on the east, and a proportional distance toward Westmoreland on the north. However, the apex of the dome—the part of most importance—is fairly limited in extent. This central part would serve as the reservoir of all these great collecting grounds. The rim of this central part begins just east of St. George, extending north along the west side of sections 4, 33, 28 and 21, townships 9 and 10 south, range 9 east. From here it seems to swing eastward in a semicircular curve through section 10, the north side of sections 14, 13 and 18, then to the south across section 19 and the west side of 20, south through 29, 32, 5, 8 and 17 to the river.

The most important part of the fold probably is to be found in sections 1, 2, 11, 12, 13, 14 and the east half of 3, 10 and 15, township 10 south, range 10 east. The rocks of this dome have an elevation at the center of nearly 300 feet above their altitude at their extreme limits of the fold, thus furnishing a considerable relief and capacity for the collection of gas or oil, should these products occur in the rocks below.

There are perhaps three horizons, or beds, in which these substances might be expected to occur. The uppermost of these has been removed from the region under consideration, and is the upper Elmdale gas-bearing bed. The next is the one from which the gas occurs at Elmdale, reported to me to be 700 feet below the first. This would be some 600 to 650 feet below the river level. Another might occur at 1,000 or 1,200 feet below the surface. It is also possible that the basal Cherokee shales might prove productive, but this is very doubtful. The Cherokee shales are productive in eastern Kansas and Oklahoma.

I believe this field is worth a thorough test for the existence of these materials. It is too large for one or two wells to test it out thoroughly, unless by accident the first ones happen to hit the most favorable places.

---

## **Algæ of Kansas Reservoirs.<sup>1</sup>**

JAMES BERNARD McNAUGHT.

### INTRODUCTION.

This report has been prepared with a two-fold purpose. First, it is intended to serve as an aid to the sanitary engineer by explaining the harmful effects of heavy growths of microorganisms in the city water reservoirs, and by describing the organisms causing trouble and the best methods for their eradication. Second, it is the first report of the survey of the algæ of Kansas by the University.

This survey was planned several years ago by Prof. W. C. Stevens and Dr. Grace M. Charles of the Department of Botany and Prof. C. C. Young and Miss Myrtle Greenfield of the Water and Sewage Laboratory of the State Board of Health. As a part of this plan, adapted especially to the need of the sanitary engineer, I began in 1915 to study the algæ of the surface water reservoirs of the cities of Kansas. Through the generosity of Mr. Young, I was provided with reference works and the standard conveniences for collecting the samples over the state, and for making the analyses.

In classifying the 110 species of algæ listed in this report, the following books were found most valuable, "Sylloge Algarum," by De Toni; "Minnesota Algæ, Vol. I," by Miss Tilden; Wolle's "Fresh-Water Algæ of the United States"; "The Green Algæ of North America," by Stokes; "The Algæ of the Fresh Waters of Connecticut," by Conn; "Synopsis des Diatomées de Belgique," by Van Heurick; and "Die Natürlichen Pflanzenfamilien," by Engler and Prantl.

The key adopted in this bulletin is based upon that given by Miss Tilden for the Myxophyceæ, F. S. Collins for the Heterokontæ and Chlorophyceæ, with the exception of the family Desmidiaceæ, where Stokes' classification is used. Shüt was the authority for the Bacillariææ.

(I take this opportunity of expressing my appreciation for advice and suggestions throughout the progress of the work to Miss Charles and Miss Greenfield.)

---

<sup>1</sup> Submitted to the Department of Botany and to the Faculty of the Graduate School of the University of Kansas in partial fulfillment of the requirements for the degree of Master of Arts.